STATE OF COLORADO

Roy Romer, Governor
Patti Shwayder, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION
http://www.cdphe.state.co.us/hm/

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-3300
Fax (303) 759-5355

222 S. 6th Street, Room 232
Grand Junction, Colorado 81501-2768
Phone (303) 248-7164
Fax (303) 248-7198

Colorado Department
of Public Health
and Environment

October 16, 1997

CERTIFIED MAIL # P335 615 291
RETURN RECEIPT REQUESTED

Bob April, Acting Group Lead
Regulatory Liaison Group
U.S. Department of Energy
Rocky Flats Field Office
P.O. Box 928
Golden, Colorado 80402-0928

RE: **Approval of RCRA Closure Plans for Four Interim Status Waste Water Tank Systems, and Response to Comments**; EPA ID#: CO7890010526

Dear Mr. April:

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the "Division") has reviewed the comments received during the public comment period which extended from September 9, 1997 through October 8, 1997 for the four Draft Closure Plans for the Rocky Flats Environmental Technology Site (RFETS). These four closure plans cover the following waste water tank systems: Building 883 T-1 and T-2 Tank Systems; Building 889 T-4 and T-5 Series Waste Water Tank Systems; Building 883 A & B Tank Systems; and Building 865 T-1, T-2, and T-3 Series Tank Systems. The Division received one set of comments from the facility during the comment period. These comments are summarized below and followed by the Division's response.

Comment 1: *CDPHE did not make changes in sections 4.2.1 and 8 (regarding debris decontamination and certification) in the closure plan for the Building 883 T-1 and T-2 Series Waste Water Tank Systems similar to the changes made in the other plans. We assume that the changes made to the other plans were intended by CDPHE for the Building 883 T-1 and T-2 plan and were omitted by mistake, but will be in the final approved plan.*

Response to Comment 1: For the Building 883 T-1 and T-2 Series Waste Water Tank Systems Closure Plan, the Division inadvertently omitted the revisions which were made in sections 4.2.1 and 8 of the other three closure plans regarding debris decontamination and certification. The Division has revised

these sections of the Building 883 T-1 and T-2 Series Waste Water Tank Systems Closure Plan to make it consistent with the other closure plans as originally intended.

Comment 2: *The requirement added by CDPHE in section 8 that the facility owner or operator sign the certification of closure is not required by 6 CCR 1007-3 part 265.115 for tanks until final facility closure and we request that it be deleted.*

Response to Comment 2: The Division has deleted language from section 8 of each of the draft closure plans requiring the facility owner or operator to sign formal closure certifications for these partial closures. However, the Division requests that RFETS submit these closure certifications in a manner consistent with the submittal of other closure certifications in the past, including a cover letter from the facility owner or operator stating whether or not closures were performed in accordance with the respective closure plans.

Comment 3: *The requirement added by CDPHE in section 8 regarding the documentation of the inspection of cleaned debris is not clear. We understand that CDPHE intended this requirement to be essentially the same as that now contained in Section X.D.6, Closure Performance Standard of the Site Part B permit. That is, the documentation of the inspection of the debris that has found the debris to meet a clean debris surface must be certified by the independent Colorado-registered professional engineer (P.E.). We request your agreement that the intended plan requirement means it is not necessary that the P.E. personally perform the debris inspection.*

Response to Comment 3: The Division disagrees with the statement that, "the intended plan requirement means it is not necessary that the P.E. personally perform the debris inspection." The Division intended for the certification requirement to be consistent with the requirement specified under Section X.D.6 (Closure Performance Standard for "Debris Rule" Decontamination) of the RFETS State-RCRA Permit. For inspections of decontaminated hazardous debris, Section X.D.6 of the RFETS State-RCRA Permit states, "Documentation of the inspection will then be prepared and certified by and independent professional engineer." Preliminary inspections of decontaminated hazardous debris may be performed by the Permittee; however, to certify that the debris meets the definition of a "clean debris surface", the independent Colorado-registered P.E. must conduct an inspection of the debris and prepare documentation of the inspection along with a certification. Language has been added to section 8 of each of the four closure plans to clarify this requirement.

Comment 4: *We request that the requirement in section 4.2.1 that, "waste generated by the system will be removed daily from the containment structure" be revised to also allow waste to remain in the structure near the point of generation pursuant to the container accumulation rule, 6 CCR 1007-3 part 262.34(c).*

Response to Comment 4: Section 4.2.1 of each of the closure plans has been revised accordingly.

The four approved Closure Plans are being issued by the Division in accordance with its authority under the Colorado Hazardous Waste Act, Sections 25-15-301 through 316, C.R.S. and the regulations thereunder. Verbal approval was given on October 15, 1997 by James Hindman of my staff to begin closure activities. In accordance with 6 CCR 1007-3, Section 265.113(b), RFETS must complete the required closure activities identified in the four enclosed Closure Plans within 180 days after the approval date of October 15, 1997. Enclosed are copies of the four final approved closure plans and "marked-up" pages of the final approved closure plans indicating revisions made based on the above comments (additions are indicated with "red-line" and deletions are indicated with "~~strike-out~~"). If you have any questions concerning these matters, please contact James Hindman at (303) 692-3345.

Sincerely,

Joe Schieffelin, Unit Leader
Federal Facilities Permitting and Compliance

Enclosures

cc: David Grosek, RLG, DOE-RFFO
Rick Di Salvo, OCC, DOE-RFFO
Elaine Nix, CED, DOE-RFFO
Dan Miller, AGO
Tim Rehder, USEPA Region VIII
Corbin Darling, USEPA Region VIII
Michael Simmons, MSC
Mark Haupt, MSC
Karan North, Kaiser-Hill
John Wrapp, Kaiser-Hill
Jefferson County Health Department

items: condition of the containment structure to prevent releases; maintenance of the PermaCon® vacuum within required operating limits; adequate aisle space present and clear of obstructions around the unit; proper operation of CO_2 blasting system; and presence of fugitive dust emissions from any openings (doors, windows, vents, etc.). All corrective actions taken to address inspection items will be documented on the inspection log sheets.

To assure there is no release of hazardous wastes during operation of the CO_2 blasting system, all exhaust ventilation will be filtered by HEPA filters prior to discharge from the containment structure; waste generated by the system will either be removed daily from the containment structure or collected daily and managed within a satellite hazardous waste accumulation container at or near the point of generation; and all joints and seams in the containment structure will be sealed as necessary. The CO_2 blasting system will be operated in accordance with the respective Work Package and Operation Instruction documents for this project. Measures will be taken to prevent the tracking of hazardous wastes/constituents out of the unit by personnel or by equipment used in handling the waste. An area will be designated to decontaminate any equipment and personnel leaving the containment structure. Any rinsate from these decontamination activities will be collected and properly managed.

After cleaning, the surface of each component will be visually inspected to evaluate if the closure standard of a "clean debris surface" has been met. A "clean debris surface" means:

> "the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area."
> [6 CCR 1007-3, § 268.45, Table 1]

If a "clean debris surface" is achieved and the debris does not exhibit a characteristic of hazardous waste identified under Subpart C, Part 261, then that debris will be considered a non-hazardous solid waste and will be removed and managed as non-hazardous debris for subsequent disposal at an appropriate facility. If a "clean debris surface" has not been achieved, the process will be repeated until the standard is met, or the piece will be managed as hazardous waste. Following the completion of all CO_2

Waste Operations process. Finally, pre-planning and adequate and correct characterization of the wastes will assure proper management, packaging and storage of all containerized wastes originating from this closure activity.

8. Certification of Closure

Within 60 days after completion of closure activities, the Site will submit to the Colorado Department of Public Health and Environment certification that the tanks, piping, and ancillary equipment and secondary containment have been closed in accordance with this Closure Plan. The certification will be signed by ~~the facility owner or operator and~~ an independent, Colorado-registered professional engineer. ~~The certification will also include documentation of any inspections of debris that has been determined to meet a "clean debris surface."~~ An independent, Colorado-registered professional engineer will also conduct inspections of any decontaminated hazardous debris that is determined to meet the "clean debris surface" closure performance standard. Documentation of these inspections will be prepared and certified by the independent, Colorado-registered professional engineer, and will be submitted to the Colorado Department of Public Health and Environment with the certification of closure.

9. Record Keeping

The Site will maintain the following closure records until final closure of the facility:

- Record of sampling activities (date, number and type)
- Analytical results
- Records of actions taken to decontaminate equipment or structures
- Work control packages governing the closure of this RCRA unit
- Other documentation which verifies that the Site followed the approved Closure Plan.

10. Amendment of the Closure Plan

In conducting the closure activities, unexpected events that occur during the implementation of the required closure activities may require an amendment of the existing Closure Plan. Any request for the modification of the Closure Plan will be made within 30 days of identification of the event that causes the modification to be necessary.

performed as a requirement under the NCPP IM/IRA activities. In addition, piping and valves that are removed will be characterized for lead and asbestos contaminants prior to disposal.

4.2 Closure Activities

4.2.1 Tanks

The 'A' and 'B' series tanks will be removed in order to undergo cleaning and evaluation against the clean debris standards specified in this section. Tank removal will be performed using temporary containment structures or enclosed portions of existing rooms. The containment area will be ventilated using portable HEPA filtered air movers to assure containment of radioactive materials and protect the workers involved in the process. The tanks will be size reduced into manageable pieces. These pieces will be transferred to an existing PermaCon® enclosure located in Room 105 of Building 883 with attached HEPA filtered air movers to protect the workers involved with the process.

Once in the containment structure, the tank pieces will be cleaned using a carbon dioxide (CO_2) pressure cleaning system. The advantage to this cleaning process is that it is aggressive, but leaves no residue other than the materials that are removed from the tank pieces. Consequently there is no generation of additional liquid wastes. Daily inspections to assure control and containment of hazardous wastes and hazardous constituents produced by the decontamination activities in the PermaCon® enclosure located in Room 105 of Building 883 will be performed and documented on inspection log sheets. These inspection log sheets must be completed and must include the date inspected, time of inspection, signature of inspector, and an evaluation the following items: condition of the containment structure to prevent releases; maintenance of the PermaCon® vacuum within required operating limits; adequate aisle space present and clear of obstructions around the unit; proper operation of CO_2 blasting system; and presence of fugitive dust emissions from any openings (doors, windows, vents, etc.). All corrective actions taken to address inspection items will be documented on the inspection log sheets.

To assure there is no release of hazardous wastes during operation of the CO_2 blasting system, all exhaust ventilation will be filtered by HEPA filters prior to discharge from the containment structure; waste generated by the system will either be removed daily from the containment structure or collected daily and managed within a satellite hazardous waste accumulation container at or near the point of generation; and all joints and

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debris standards will be disposed of as non-hazardous (but possibly low-level radioactive) waste. Ancillary equipment will either be managed as low-level mixed waste or hazardous waste. Metals which do not meet these standards will be characterized appropriately and managed as low-level mixed hazardous waste. Residuals will be managed as indicated in Section 4 of this Closure Plan. Finally, PPE and other miscellaneous waste forms will be managed as low-level or low-level mixed waste as appropriate. Low-level mixed waste storage will be coordinated with the site to ensure proper management.

7.2 Waste Minimization

All activities will be performed with waste minimization in mind. The CO_2 blasting debris technology to be utilized has the benefit that no secondary waste is produced during use. As the CO_2 pellets hit the item being cleaned, the pellet instantly evaporates leaving behind only the original contaminate. Extensive contamination control techniques will be used to minimize the spread of contamination resulting from the closure activities. Liquid effluent generation will be held to a minimum to reduce the resulting mixed-waste saltcrete produced from the Building 374 Liquid Waste Operations process. Finally, pre-planning and adequate and correct characterization of the wastes will assure proper management, packaging and storage of all containerized wastes originating from this closure activity.

8. Certification of Closure

Within 60 days after completion of closure activities, the Site will submit to the Colorado Department of Public Health and Environment certification that the tanks, piping, and ancillary equipment and secondary containment have been closed in accordance with this Closure Plan. The certification will be signed by ~~the facility owner or operator and~~ an independent, Colorado-registered professional engineer. ~~The certification will also include documentation of the inspection of debris that has been determined to meet a "clean debris surface."~~ An independent, Colorado-registered professional engineer will also conduct inspections of any decontaminated hazardous debris that is determined to meet the "clean debris surface" closure performance standard. Documentation of these inspections will be prepared and certified by the independent, Colorado-registered professional engineer, and will be submitted to the Colorado Department of Public Health and Environment with the certification of closure.

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results demonstrate that the Performance Standard has been met. Following washing and rinsing, analytical tests will be conducted in accordance with the approved lab procedures that meet the requirements of SW-846 to demonstrate the decontamination process has produced results in accordance with the following Closure Performance Standard:

> The unit, unit equipment, or a portion thereof will be considered decontaminated upon removal of all visible waste residuals and when the final rinsate contains total concentrations of each of the following metals at less than the maximum contaminant levels for drinking water (as identified in RFCA, Attachment 5, Table 2): antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver and thallium. The pH of the final rinsate must be between 6 and 9.

The final rinsate volume for external surfaces must not exceed two gallons per 100 square feet of surface area rinsed. The final rinsate volume for internal surfaces of tanks must not exceed 5% of the capacity of the tank.

Following clean closure, portions of the tanks system and ancillary equipment may be reused for non-hazardous waste water or alternatively stripped out and recycled or managed as non-hazardous waste.

If it is determined that the tanks cannot be "clean closed", they will be removed in order to undergo cleaning and evaluation against the clean debris standards specified in this section. Tank removal will be performed using temporary containment structures or enclosed portions of the existing room. The containment area will be ventilated using portable HEPA filtered air movers to assure containment of radioactive materials and protect the workers involved in the process. ~~Following washing and rinsing of the tanks, the tanks will be moved to Building 883 where t~~The tanks will be size reduced into manageable pieces. These pieces will be transferred to an existing PermaCon® enclosure located in Room 105 of Building 883 with attached HEPA filtered air movers to protect the workers involved with the process.

Once in the containment structure, the tank pieces will be cleaned using a carbon dioxide (CO_2) pressure cleaning system. The advantage to this cleaning process is that it is aggressive, but leaves no residue other than the materials that are removed from the tank pieces. Consequently there is no generation of additional liquid wastes. Daily inspections to assure control and containment of hazardous wastes and hazardous constituents produced by the decontamination activities in the PermaCon® enclosure

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located in Room 105 of Building 883 will be performed and documented on inspection log sheets. These inspection log sheets must be completed and must include the date inspected, time of inspection, signature of inspector, and an evaluation the following items: condition of the containment structure to prevent releases, maintenance of the PermaCon® vacuum within required operating limits; adequate aisle space present and clear of obstructions around the unit; proper operation of CO_2 blasting system; and presence of fugitive dust emissions from any openings (doors, windows, vents, etc.). All corrective actions taken to address inspection items will be documented on the inspection log sheets.

To assure there is no release of hazardous wastes during operation of the CO_2 blasting system, all exhaust ventilation will be filtered by HEPA filters prior to discharge from the containment structure; waste generated by the system will either be removed daily from the containment structure or collected daily and managed within a satellite hazardous waste accumulation container at or near the point of generation; and all joints and seams in the containment structure will be sealed as necessary. The CO_2 blasting system will be operated in accordance with the respective Work Package and Operation Instruction documents for this project. Measures will be taken to prevent the tracking of hazardous wastes/constituents out of the unit by personnel or by equipment used in handling the waste. An area will be designated to decontaminate any equipment and personnel leaving the containment structure. Any rinsate from these decontamination activities will be collected and properly managed.

After cleaning, the surface of each component will be visually inspected to evaluate if the closure standard of a "clean debris surface" has been met. A "clean debris surface" means:

> "the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area."
> [6 CCR 1007-3, § 268.45, Table 1]

If a "clean debris surface" is achieved and the debris does not exhibit a characteristic of hazardous waste identified under Subpart C, Part 261, then that debris will be considered a non-hazardous solid waste and will be removed and managed as non-

hazardous debris for subsequent disposal at an appropriate facility. If a "clean debris surface" has not been achieved, the process will be repeated until the standard is met, or the piece will be managed as hazardous waste. Following the completion of all CO_2 activities, the PermaCon® enclosure will be thoroughly cleaned of all waste materials by vacuuming or other means, and the exhaust pre-filters will be changed and managed appropriately as waste ~~to remove the residuals~~. ~~These r~~Residuals will be characterized and managed as a waste in accordance with the general requirements identified in 6 CCR 1007-3, Part 268.45(d)(1).

If a clean surface cannot be achieved with additional cleaning, or the CO_2 system is unavailable, the tank pieces will be managed as hazardous waste~~debris~~.

4.2.2 Sumps and Below Grade Piping

There are no sumps or below grade piping involved with this Closure Plan. The "sump" shown on Figure 3 is an integral part of the secondary containment system for the Building 883 T-1 and T-2 Tank System, and will be addressed under the closure activities described below in Section 4.2.3.

4.2.3 Secondary Containment

Secondary containment located in Building 883, Room 139 will be decontaminated in a manner to comply with the provisions of the following Closure Performance Standard :

> The unit, unit equipment, or a portion thereof will be considered decontaminated upon removal of all visible waste residuals and when the final rinsate contains total concentrations of each of the following metals at less than the maximum contaminant levels for drinking water (as identified in RFCA, Attachment 5, Table 2): antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver and thallium. The pH of the final rinsate must be between 6 and 9.

The process will include decontaminating the surfaces using an appropriate decontamination solution (consisting of water and detergent which does not contain hazardous constituents) by manual application, followed by a final rinse with clean water. The final rinsate volume for external surfaces must not exceed two gallons per 100 square feet of surface area rinsed. The rinsate solution will be collected and analytical tests will be conducted in accordance with the approved lab procedures that

7.2 Waste Minimization

All activities will be performed with waste minimization in mind. Extensive contamination control techniques will be used to minimize the spread of contamination resulting from the closure activities. Liquid effluent generation will be held to a minimum to reduce the resulting mixed-waste saltcrete produced from the Building 374 Liquid Waste Operations process. Finally, pre-planning and adequate and correct characterization of the wastes will assure proper management, packaging and storage of all containerized wastes originating from this closure activity.

8. Certification of Closure

Within 60 days after completion of closure activities, the Site will submit to the Colorado Department of Public Health and Environment certification that the tanks, piping, and ancillary equipment and secondary containment have been closed in accordance with this Closure Plan. The certification will be signed by an independent, Colorado-registered professional engineer. An independent, Colorado-registered professional engineer will also conduct inspections of any decontaminated hazardous debris that is determined to meet the "clean debris surface" closure performance standard. Documentation of these inspections will be prepared and certified by the independent, Colorado-registered professional engineer, and will be submitted to the Colorado Department of Public Health and Environment with the certification of closure.

9. Record Keeping

The Site will maintain the following closure records until final closure of the facility:

- Record of sampling activities (date, number and type)
- Analytical results
- Records of actions taken to decontaminate or remove and dispose of equipment or structures
- Work control packages governing the closure of this RCRA unit
- Other documentation which verifies that the Site followed the approved Closure Plan.

10. Amendment of the Closure Plan

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inspected, time of inspection, signature of inspector, and an evaluation the following items: condition of the containment structure to prevent releases; maintenance of the PermaCon® vacuum within required operating limits; adequate aisle space present and clear of obstructions around the unit; proper operation of CO_2 blasting system; and presence of fugitive dust emissions from any openings (doors, windows, vents, etc.). All corrective actions taken to address inspection items will be documented on the inspection log sheets.

To assure there is no release of hazardous wastes during operation of the CO_2 blasting system, all exhaust ventilation will be filtered by HEPA filters prior to discharge from the containment structure; waste generated by the system will either be removed daily from the containment structure or collected daily and managed within a satellite hazardous waste accumulation container at or near the point of generation; and all joints and seams in the containment structure will be sealed as necessary. The CO_2 blasting system will be operated in accordance with the respective Work Package and Operation Instruction documents for this project. Measures will be taken to prevent the tracking of hazardous wastes/constituents out of the unit by personnel or by equipment used in handling the waste. An area will be designated to decontaminate any equipment and personnel leaving the containment structure. Any rinsate from these decontamination activities will be collected and properly managed.

After cleaning, the surface of each component will be visually inspected to evaluate if the closure standard of a "clean debris surface" has been met. A "clean debris surface" means:

> "the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area."
> [6 CCR 1007-3, § 268.45, Table 1]

If a "clean debris surface" is achieved and the debris does not exhibit a characteristic of hazardous waste identified under Subpart C, Part 261, then that debris will be considered a non-hazardous solid waste and will be removed and managed as non-hazardous debris for subsequent disposal at an appropriate facility. If a "clean debris surface" has not been achieved, the process will be repeated until the standard is met,

8. Certification of Closure

Within 60 days after completion of closure activities, the Site will submit to the Colorado Department of Public Health and Environment certification that the tanks, piping, and ancillary equipment and secondary containment have been closed in accordance with this Closure Plan. The certification will be signed by ~~the facility owner or operator and~~ an independent, Colorado-registered professional engineer. ~~The certification will also include documentation of the inspection of debris that has been determined to meet a "clean debris surface."~~ An independent, Colorado-registered professional engineer will also conduct inspections of any decontaminated hazardous debris that is determined to meet the "clean debris surface" closure performance standard. Documentation of these inspections will be prepared and certified by the independent, Colorado-registered professional engineer, and will be submitted to the Colorado Department of Public Health and Environment with the certification of closure.

9. Record Keeping

The Site will maintain the following closure records until final closure of the facility:

- Record of sampling activities (date, number and type)
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- Work control packages governing the closure of this RCRA unit
- Other documentation which verifies that the Site followed the approved Closure Plan.

10. Amendment of the Closure Plan

In conducting the closure activities, unexpected events that occur during the implementation of the required closure activities may require an amendment of the existing Closure Plan. Any request for the modification of the Closure Plan will be made within 30 days of identification of the event that causes the modification to be necessary.